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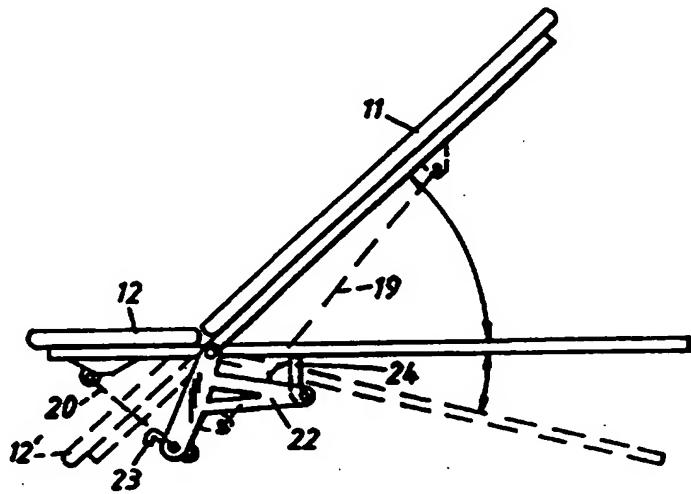
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(54) Title: UROLOGY- AND GYNECOLOGY BENCH



(57) Abstract

An improved urological or gynecological examination- and treatment bench of the kind which comprises a frame having a lowermost portion and an uppermost portion, preferably designed as a pivotal arm and raisable and lowerable carrying a back cushion (11) that is individually adjustable at least to its angular position with respect to the horizontal plane, and at least one seat cushion (12) which is similarly individually adjustable to its angular position with respect to the horizontal plane. At least one of the pivotal axis for the angular adjustment of the back cushion (11) or the seat cushion (12) may be released and is arranged in such a manner that it is adjustable in dependence of a change of position of the pivotal axis of the other cushion, so that the two cushions are jointly movable under operation of only one of them while retaining their mutual angular position.

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**Urology- and gynecology bench**

The present invention relates to an improved urology- and gynecology bench, i.e. a bench of the kind which is used at e.g. urological and gynecological examinations and treatment of various kinds.

The invention has been created in connection with certain urological examinations, and, therefore, it will disclosed essentially with reference to such use, but it is by no means restricted to that field of use only.

An appreciated urological and gynecological examination and treatment bench comprises, in its basic design, a preferably easily movable frame which carries a back cushion and a seat cushion, besides ordinary arm-, leg- and foot supports etc. The frame comprises a lowermost frame portion which carries an arm that is pivotally connected thereto at the lowermost end thereof and which carries the back cushion and the seat cushion at the outer, uppermost end thereof. Therefore, these cushions may be elevated and lowered by a corresponding movement of the pivotally journalled arm. The cushions may also be swung individually in order to adjust their inclination in relation to the horizontal plane. Simplified, the cushions may be described, in one position, as forming a horizontal table, whereas they, in another position, may be described as forming a chair. The angular positions of the cushions are infinitely variable and the adjustment of the cushions may be supported by so called gas-springs or the like. Normally, both the raising and lowering movements of the pivotal arm and the adjustment of the angular positions of the two cushions is performed by means of suitable shifting motors. Of course, the known examination and treatment bench has the necessary support and locking devices to secure the elevational and inclinational positions of the cushions. Normally, the back cushion may also be folded backwardly beyond a horizontal position, viz. into a so called shock position, wherein the patient, resting on his back, has his head situated in a lower position than his body.

An urological and gynecological examination bench of the

just described principal kind is very adaptable for various demands, viz. due to the possibility to individual adjustment of the two cushions both with respect to both their height position and their inclinational position. However, this possibility to individual adjustment also involves a not unimportant problem in certain specific cases. Thus, there exists a need for a simple variation of the angular position of the cushions, in one single step, and without variation of their mutual angular position.

The present invention has aimed at providing a device that meets the just mentioned need.

To the just mentioned end the improved urological or gynecological examination- and treatment bench of the kind which comprises a frame having a lowermost portion and an uppermost portion, preferably designed as a pivotal arm and raisable and lowerable carrying a back cushion that is individually adjustable at least to its angular position with respect to the horizontal plane, and a seat cushion which is similarly individually adjustable at least to its angular position with respect to the horizontal plane according to the invention has been designed in such a manner that at least one of the pivotal axis for the angular adjustment of the back cushion or the seat cushion may be released and is arranged in such a manner that it is adjustable in dependence of a change of position of the pivotal axis of the other cushion, so that the two cushions are jointly movable under operation of only one of them and while retaining their mutual angular position.

Preferably, the pivot axis of the back cushion and the seat cushion are arranged in movable and, in one position, lockable brackets at each side of the examination- and treatment bench.

Preferably, the device according to the invention should also be able to be incorporated into existing examination- and treatment benches.

The invention will be disclosed in more details below with reference to the accompanying drawings.

Figure 1 is a perspective view of a prior art examination- and treatment bench and intends to show the milieu, in

which the device according to the present invention is intended to be utilized;

Figure 2 is a side view of the examination and treatment bench in Figure 1;

Figure 3 is a side view of a portion of an examination and treatment bench, provided with one embodiment of the improvement according to the present invention;

Figure 4 and 5, and 6 and 7, respectively, illustrate two different ways of employing the examination- and treatment bench incorporating a device according to the present invention, wherein Figures 4 and 5 show a "German" model whereas Figures 6 and 7 show an "American" model.

Figures 8 and 9 illustrate details of a slightly further developed embodiment of the device according to the invention in two positions of the back cushion and seat cushion, respectively, shown as examples.

The urological and gynecological examination- and treatment bench, shown in Figures 1 and 2 as an example of the milieu wherein the device according to the invention is intended to operate, comprises in its basic embodiment an easily movable frame 10 which carries a back cushion 11 and a seat cushion 12, besides the usual arms rest, legs rest 13 and foot rest. (The arm- and foot rests are not shown in Figures 1 and 2).

The frame 10 comprises a lowermost frame portion 14, which carries an arm 15 that is pivotally journalled at its lowermost end, and which carries the back cushion 11 and seat cushion 12 at its outermost end. Therefore, these cushions may be elevated and lowered by a corresponding movement of the pivotally journalled arm 15. The cushions 11, 12 may also be swung individually in order to vary their inclination with respect to the horizontal plane. To simplify, the cushions 11, 12 may be described, in one position thereof, to form a horizontal table, whereas they, in another position thereof, may be described as forming a chair, as will be disclosed in more details below.

The inclinational positions of the cushions 11, 12 are infinitely adjustable, and the positioning of the cushions 11,

12 may be sustained by so called gas springs 16, 17 or the like.

The elevational and lowering movements of the pivotal arm 15 may be performed by means of a suitable positioning motor 18, whereas the swinging motion of the back cushion in order to adjust the inclinational position thereof in relation to the horizontal is performed by means of a second positioning motor 19, whereas the swinging motion of the seat cushion 12 in order to adjust the inclinational position thereof in relation to the horizontal is performed by a suitable third positioning motor 20.

A bracket 14A on the lowermost frame portion 14, wherein the lowermost end of the pivotal arm 15 is pivotally journalled, and in which bracket also the lowermost end of the gas spring 17 is pivotally journalled, and an upper bracket 21, in which the uppermost end of the pivotal arm 15 and the uppermost end of the gas spring 17 are pivotally journalled at some distance from each other, form together with the pivotal arm 15 and the gas spring 17 in question a parallelogram link system which ensures that the back cushion 11 and the seat cushion 12, which both rest against the uppermost bracket, or, more correct, are pivotally connected thereto, maintain their mutual angular positions while being raised and lowered in relation to the floor. Of course, these angular positions are dependent on the position of the positioning means 19, 20. Due to its function as a from case to case immovable support for the lowermost ends of the positioning motors 19, 20, the bracket 21 may also be called a fixed motor support.

In order to stabilize the bench there is preferably provided an uppermost bracket 21 and the necessary gas springs etc. in pairs on both sides of the bench, although generally only one member of the respective pairs is shown in the drawings.

In the preferred embodiment of the device according to the invention, as shown in Figure 3, the fixed motor support 21 has been substituted by a movable bracket 22, which may be locked in the position shown by means of a latch 23. When the bracket 22 is in its locked position it operates in the same

manner as has been disclosed above with reference to the fixed support 21. This means that the back cushion 11 and the seat cushion 12 are individually adjustable into their different angular positions by means of their respective positioning means.

The movable bracket 22 has an upwardly foldable strut 24 which may rest against the frame of the back cushion 11 in the plane position thereof as shown. Now, if the frame of the back cushion is swung downwardly into a "shock-position", as is shown by dashed lines in Figure 3, the movable bracket 22 is urged to clock-wise according to Figure 3, so that the latch 23 may be released. If the frame of the back cushion 11 is then swung upwardly or downwardly, the movable bracket 22 and therewith also the frame of the seat cushion will follow this swinging motion while retaining their angular position in relation to the frame of the back cushion.

As has been mentioned above Figures 4 and 5 illustrate, very diagrammatically, one way of utilizing the device according to the invention in an urological and gynecological examination bench. According to Figure 4 a patient P is placed on the back cushion 11 with his legs angled upwardly. This position is, according to a "German" model, considered to be most suitable for e.g. insertion of a catheter into the urine bladder B. When it has been ascertained that the tip of the catheter has been introduced into the desired position, the back cushion 11 and the seat cushion 12, while retaining their mutual angular position, will be swung jointly and simultaneously into such a position that the patient becomes sitting with his weight resting essentially on the seat cushion 12, in which case the urine bladder of the patient will thus be disposed on an ordinary height above the outlet, and the urine pressure thus becomes the ordinary one.

According to Figures 6 and 7 the patient P is placed, resting on his back, on the now horizontal back-cushion/seat-cushion unit, completed by suitable foot-supports 26. This unit has, according to the "American" model a slightly lower seat cushion than in the "German" model, and is maintained in its entirety in horizontal position for introduction of a ca-

theter or the like. When the catheter has been introduced satisfactorily the entire unit, comprising the seat cushion and the back cushion, is swung into a generally vertical position, Figure 7, in which the patient thus becomes standing. It should be noted that the urine bladder B also in this case will be disposed at an ordinary level, so that the urine pressure becomes the ordinary one.

From the above description it should be clear that the invention, in other words, may be said to consist in provision of a possibility to release at least one of the individually angle-adjustable back- and seat cushions from its ordinary support to instead connect the cushion in question to the other one of the cushions in such a manner that the two cushions become jointly adjustable while retaining their mutual angular positions.

Above a "mechanical" version of the device according to the invention has been described. It should be mentioned that, of course, also an "operational" version may be conceived, viz. a version wherein the operational impulses of the positioning means are controlled in such a manner that, in one case, the back cushion and the seat cushion are individually adjustable, whereas they, in an alternative case, are interconnected in such a manner, that they are jointly adjustable while retaining an unchanged mutual angular position, in which case only one of the cushions will be adjusted whereas the other one simply follows the moments of the first one.

The embodiment as shown in Figures 8 and 9, which is slightly further improved as compared to the above described one, comprises, in this case, telescopically extendable struts 27 between the movable bracket 22 and the back cushion 11 (or, more precisely, the frame thereof). One such strut 27 is provided on each side of the table. The struts 27 are adapted to be locked automatically in predetermined positions, e.g. in that a resilient ring in one portion of the strut enters a suitable bore in the other portion of the strut. Of course, a plurality of different, preferably easily releasable locking means are conceivable for interlocking of the parts of the telescopic struts in the desired positions. It should be real-

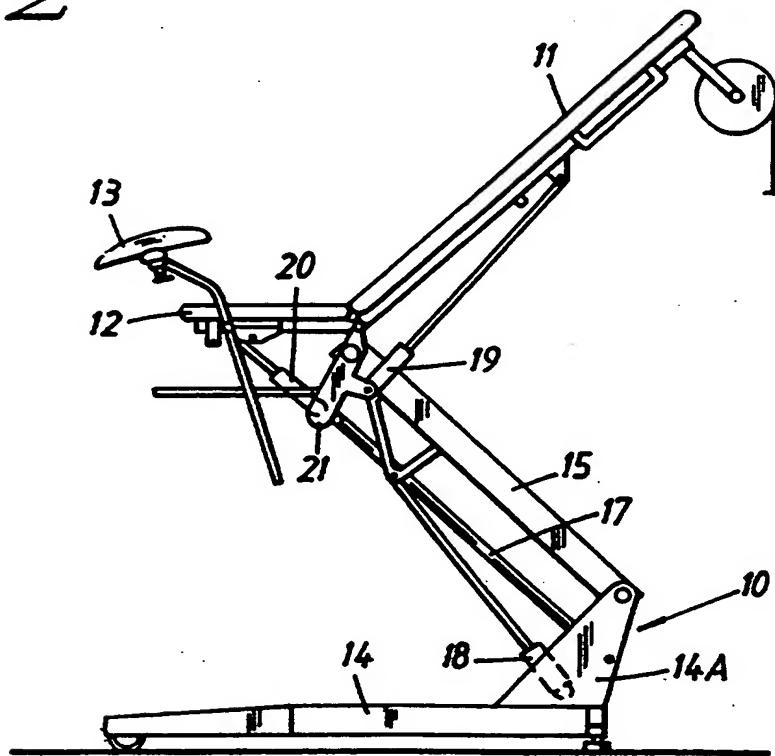
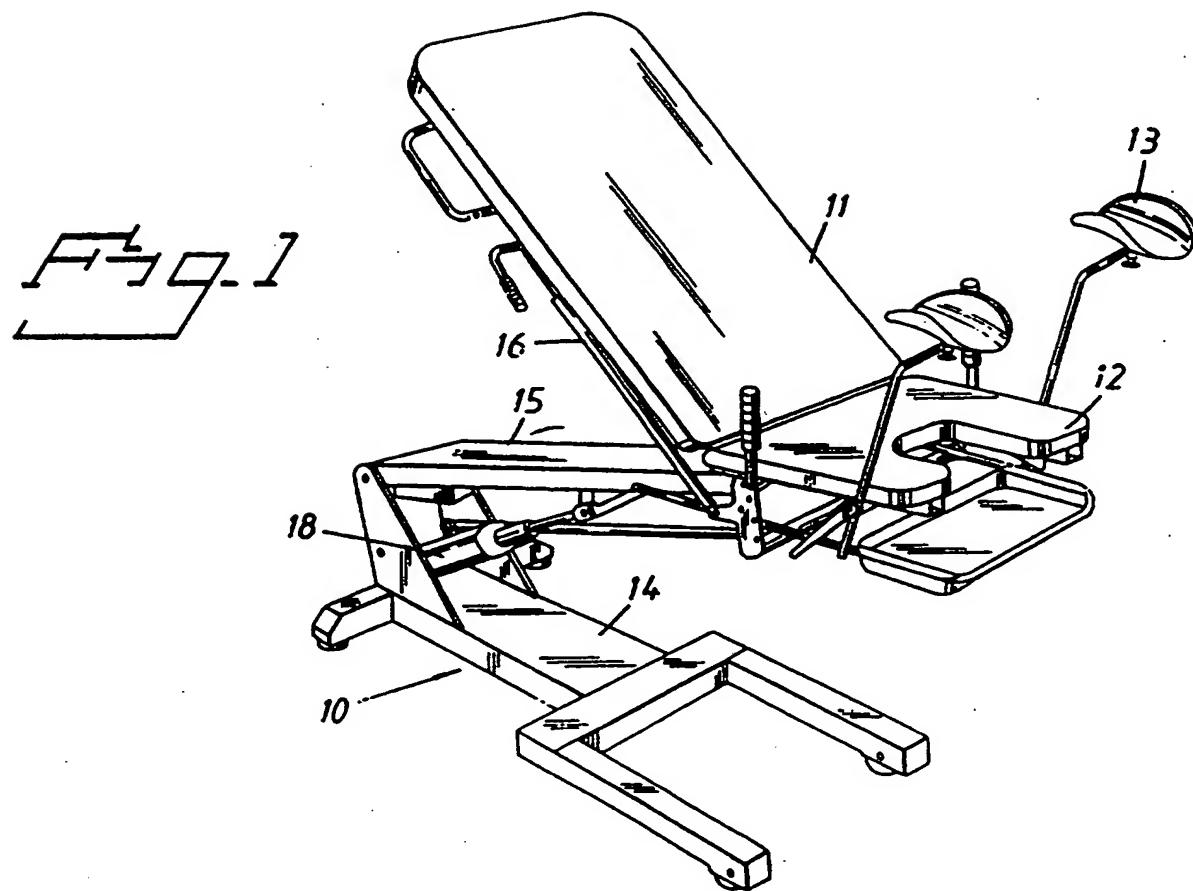
ized that it may be achieved, by locking or unlocking, respectively, of the struts that the back- and seat cushions 11, 12 move either jointly, preferably by operation of a suitable positioning motor 28, or individually and entirely independent of each other, preferably by operation of a second positioning motor 29 or the already mentioned positioning motor 28, respectively.

WO 96/22758

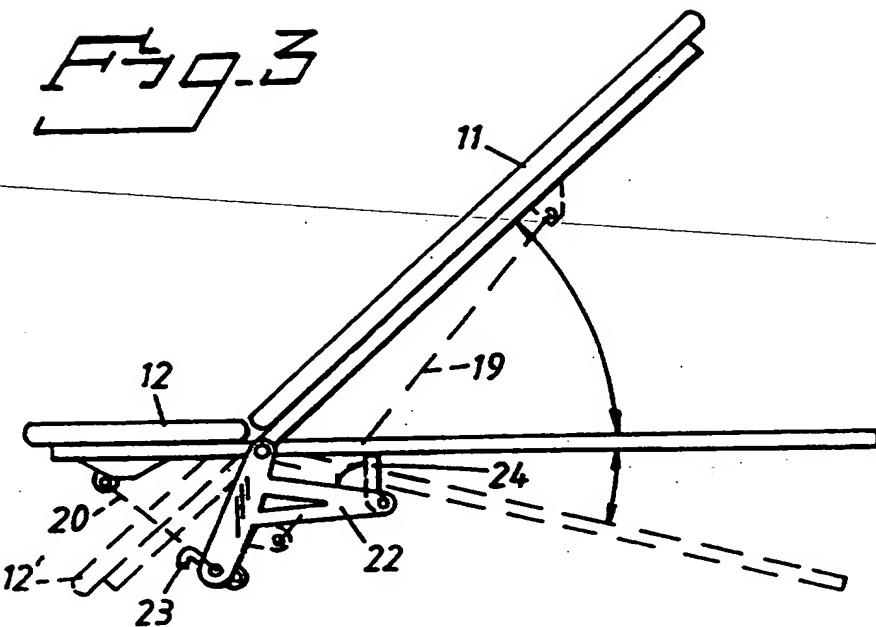
## CLAIMS

1. An improved urological or gynecological examination- and treatment bench of the kind which comprises a frame having a lowermost portion and an uppermost portion, preferably designed as a pivotal arm and raisable and lowerable carrying a back cushion (11) that is individually adjustable at least to its angular position with respect to the horizontal plane, and at least one seat cushion (12) which is similarly individually adjustable to its angular position with respect to the horizontal plane, characterized in that at least one of the pivotal axis for the angular adjustment of the back cushion (11) or the seat cushion (12) may be released and is arranged in such a manner that it is adjustable in dependence of a change of position of the pivotal axis of the other cushion, so that the two cushions are jointly movable under operation of only one of them and while retaining their mutual angular position.
2. A bench as claimed in claim 1, characterized in that the pivot axis of the back cushion (11) and the seat cushion (12) are arranged in movable and, in one position, lockable brackets (22) at each side of the examination- and treatment bench.
3. A bench as claimed in claim 1 or claim 2, characterized in that there between the brackets (22) and either the back cushion (11) or the seat cushion (12) are provided extendible struts (27) for occasional fixing of the angular positions of the bracket (22) in relation to the back cushion (11) or the seat cushion (12), respectively, in order to permit positioning thereof, either jointly or individually.

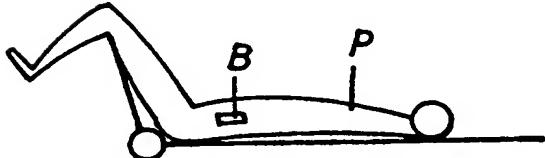
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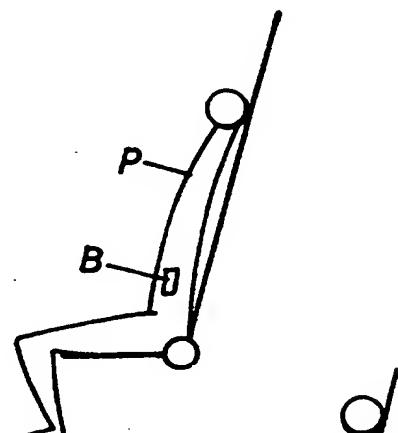
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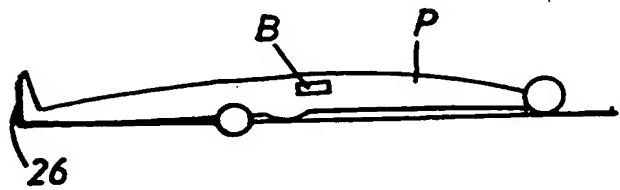
*Fig. 4*



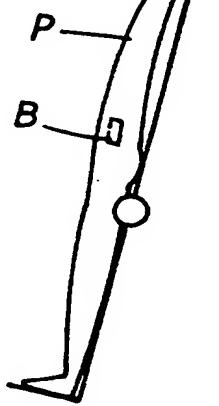
*Fig. 5*



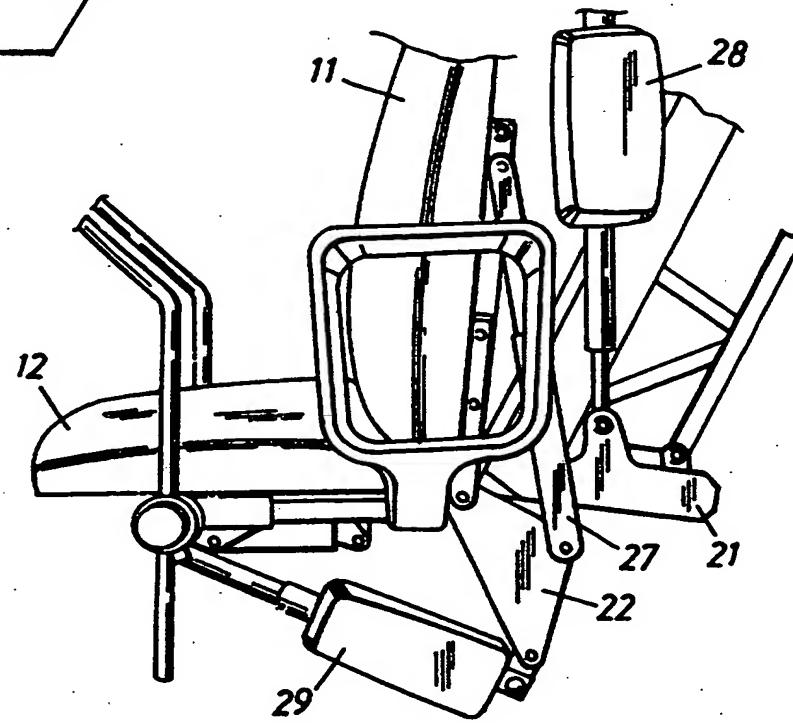
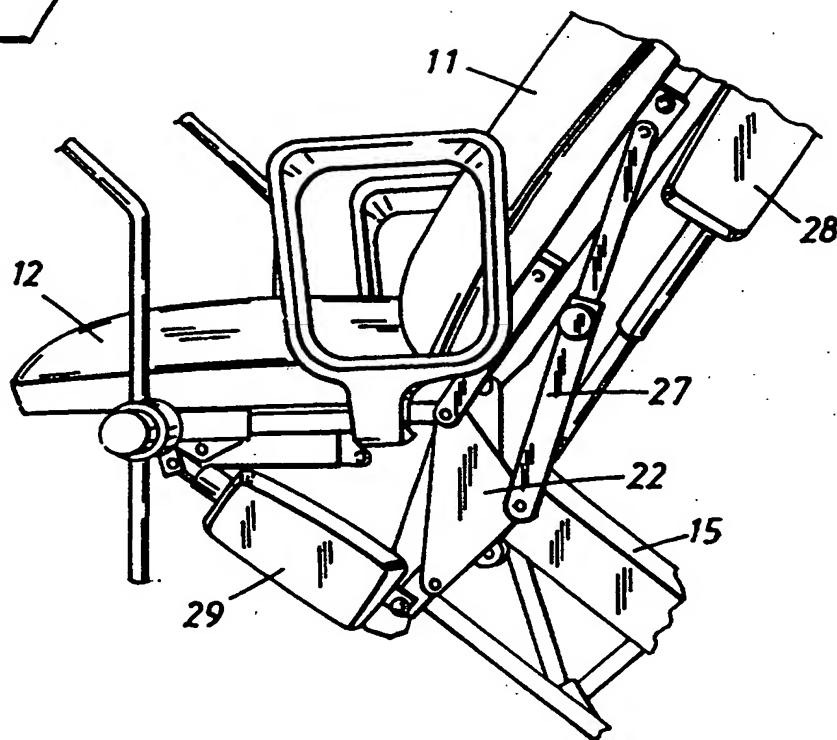
*Fig. 6*



*Fig. 7*



3 / 3



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 96/00062

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC6: A61G 13/08 A61G 15/04**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

**IPC6: A61G**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

**SE,DK,FI,NO classes as above**

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**EPODOC, WPIL, EPODOC, PAJ**

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2169500 A (ROCKET OF LONDON LIMITED), 16 July 1986 (16.07.86), figure 2, abstract  --	1-3
A	GB 2148110 A (UNIVERSITY COLLEGE LONDON), 30 May 1985 (30.05.85), figure 1, abstract  --	1-3
A	US 4516805 A (MARVIN A. LEEPER ET AL), 14 May 1985 (14.05.85), abstract  --	1-3
A	GB 2144033 A (HOSKINS LIMITED), 27 February 1985 (27.02.85), abstract  --	1-3

 Further documents are listed in the continuation of Box C. See patent family annex.

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2508034 A1 (STIERLEN-MAQUET AG), 2 Sept 1975 (02.09.75), figure 2, abstract ---	1-3
A	US 3845945 A (WRAYMON RANDLE LAWLEY ET AL), 5 November 1974 (05.11.74), figures 3 and 4, abstract --- -----	1-3

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
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GB-A- 2148110	30/05/85	NONE		
US-A- 4516805	14/05/85	CA-A-	1237974	14/06/88
GB-A- 2144033	27/02/85	EP-A,A-	0133228	20/02/85
DE-A1- 2508034	02/09/75	NONE		
US-A- 3845945	05/11/74	NONE		